

WHEEL ASSEMBLY FOR A CART

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a wheel assembly, and more particularly to a wheel assembly for a cart. The wheel assembly is composed of a wheel having a centrally defined axle hole, a shoulder formed on an inner side face of the axle hole, and an axle extending into the axle hole. The axle has an annular groove defined in a free end of the axle and a sleeve having a head portion and a body integrally formed with the head portion and having a slit defined in a free end of the sleeve. An annular indentation is orthogonally defined relative to the slit such that after the shoulder is received in the corresponding annular indentation, a clamp inserted from the opening in the head portion is able to secure engagement between the axle and the sleeve.

2. Description of Related Art

A conventional wheel assembly, as shown in Figs. 7 and 8, for a cart normally is composed of a wheel (5), an axle (6) extending through the wheel (5) and supported by a bracket (not numbered) of the cart (not shown), a cap (7) securely connected to a free end of the axle (6) and a spring (8) mounted around the axle (6). The spring (8) is sandwiched between the bracket and the wheel (5) to push the wheel (5) to engage with the cap (7) such that the wheel (5) is not slidable on the axle (6). In order to prevent direct friction between the wheel (5) and the cap (7), a clamp (9) is sandwiched between the cap (7) and the wheel (5) to secure a free end of the axle (6).

When the conventional wheel assembly is used, the wheel (5) tends to

1 wobble easily and thus causes uneven friction to the wheel (5) by the clamp (9).
2 Furthermore, it is not easy for the user to self-assemble the wheel assembly.
3 After the free end of the axle (6) is clamped by the clamp (9), the cap (7) has no
4 substantial function but only serves to decorate the overall appearance of the
5 conventional wheel assembly.

6 To overcome the shortcomings, the present invention tends to provide an
7 improved wheel assembly to mitigate the aforementioned problems.

8 SUMMARY OF THE INVENTION

9 The primary objective of the present invention is to provide an improved
10 wheel assembly to enable the user to easily assemble the entire wheel assembly.

11 Other objects, advantages and novel features of the invention will
12 become more apparent from the following detailed description when taken in
13 conjunction with the accompanying drawings.

14 BRIEF DESCRIPTION OF THE DRAWINGS

15 Fig. 1 is an exploded perspective view of the wheel assembly of the
16 present invention; a perspective view of the wheel assembly of the present
17 invention;

18 Fig. 2 is a cross sectional view showing the assembled wheel assembly
19 of the present invention;

20 Fig. 3 is a schematic side view showing the clamp is implemented to
21 clamp the axle extending into the wheel;

22 Fig. 4 is a perspective view showing the wheel assembly of the present
23 invention;

24 Fig. 5 is a schematic perspective view showing the application of the

1 wheel assembly in a cart;

2 Fig. 6 is a schematic side view showing that the cart in Fig. 5 is folded;

3 Fig. 7 is a perspective view showing a conventional wheel assembly; and

4 Fig. 8 is a schematic cross sectional view of the conventional wheel
5 assembly in Fig. 5.

6 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

7 With reference to Fig. 1, the wheel assembly in accordance with the
8 present invention has an axle (1), a wheel (2), a sleeve (3) and a clamp (4).

9 The axle (1) is cylindrical and has an annular groove (11) close to a distal
10 end of the axle (1). The wheel (2) has a centrally defined axle hole (21) and a
11 shoulder (22) (as shown in Fig. 2) formed on an inner face defining the axle hole
12 (21).

13 Referring to Fig. 2, the sleeve (3) has a head portion (31) and a body
14 portion (32) integrally formed with the head portion (31) and having a diameter
15 smaller than the diameter of the head portion (31). The head portion (31) has at
16 least two cutouts (311) defined in the head portion (31) and thus at least two
17 stops (312) formed between the at least two cutouts (311). The body portion (32)
18 has a slit (321) axially defined in the body portion (32) to separate a free end of
19 the body portion to two halves, an annular indentation (322) laterally defined in
20 the body portion (32) to correspond to the shoulder (22) of the wheel (2) and a
21 passage (33) in communication with the slit (321) and the at least two cutouts
22 (311).

23 The clamp (4) has two distal ends and a configuration corresponding to
24 either one of the stops (312).

1 With reference to Figs. 2 and 3, when the wheel assembly of the present
2 invention is to be assembled, the sleeve (3) is extended into the axle hole (21) to
3 have the shoulder (22) received in the corresponding annular indentation (322).
4 Due to the provision of the slit (321), the two halves of the body portion (32)
5 provide a resilience to allow the two halves to move toward each other such that
6 after the shoulder (22) is received in the annular indentation (322), the sleeve (3)
7 is securely received in the axle hole (21) of the wheel (2). Then the axle (1) is
8 extended into the axle hole (21) of the wheel (2) and the passage (33) of the
9 sleeve (3) to abut a bottom face defining the passage (33). The annular groove
10 (11) is exposed to the at least two cutouts (311) and the two distal ends of the
11 clamp (4) are able to be extended into the two cutouts (311) to have one of the at
12 least two stops (312) received in the clamp (4) and clamp a bottom face defining
13 the annular groove (11).

14 With reference to Fig. 4, it is noted that the wheel assembly of the
15 present invention is simple in structure and very easy to be assembled in that
16 after the components of the wheel assembly are produced, the operator is able to
17 easily combine every component together. Once the sleeve (3) is secured in the
18 axle hole (21) of the wheel (2), the axle (1) can be extended into the axle hole (21)
19 and the passage (33) of the sleeve (3) and then the clamp (4) is used to clamp the
20 bottom face defining the annular groove (11) whereby the entire structure is
21 secured with ease.

22 Furthermore, before the cart is sold to the customer, the wheel (2), the
23 sleeve (3) and the clamp (4) are already assembled. Therefore, the customer only
24 needs to extend the axle (1) into the axle hole (21) to have the clamp (4) to clamp

1 the annular groove (11) to complete the assembly. Thus the customer only needs
2 a simple process to complete the assembly.

3 With reference to Figs. 6 and 7, it is noted that the wheel assembly
4 constructed in accordance with the present invention is combined with a cart (A)
5 with which the user is able to load goods therein. With the advantages of the
6 present invention, the user is able to easily assemble the wheel assembly to the
7 cart (A).

8 It is to be understood, however, that even though numerous
9 characteristics and advantages of the present invention have been set forth in the
10 foregoing description, together with details of the structure and function of the
11 invention, the disclosure is illustrative only, and changes may be made in detail,
12 especially in matters of shape, size, and arrangement of parts within the
13 principles of the invention to the full extent indicated by the broad general
14 meaning of the terms in which the appended claims are expressed.